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Fleet 4.0 FAQ

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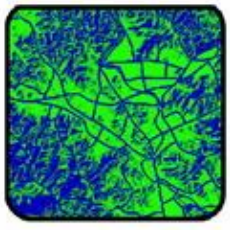

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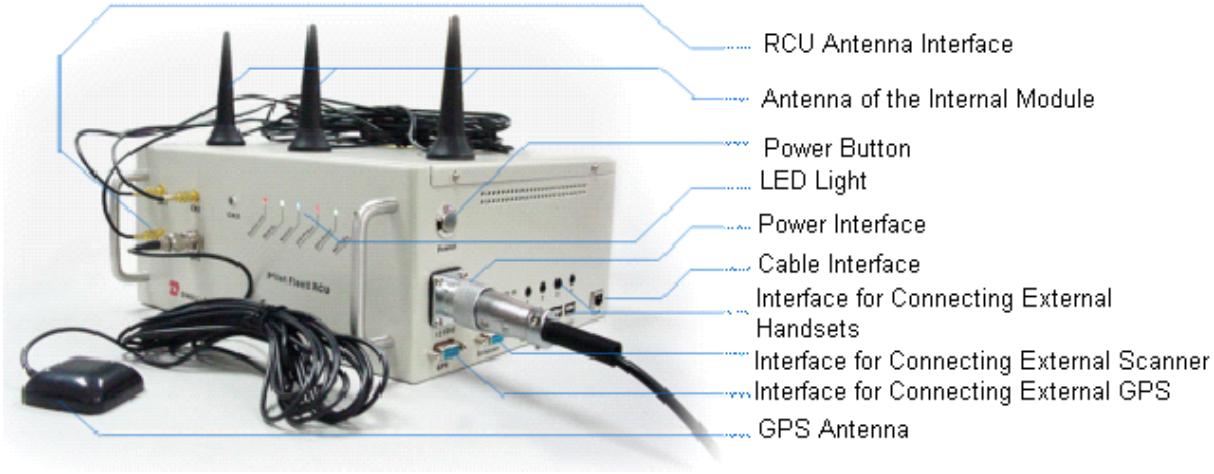
1 Questions on RCU and Web

1.1 Questions on RCU

1.1.1 What is RCU?

The RCU, remote control unit, is the remote autonomous testing and data transmission terminal, equipped with the wireless modem, GPS and GSM/GPRS/CDMA/UMTS/TD-SCDMA handset modules that can be configured by the customers' requirements. The amount of RCU used in the system depends on the testing workload and the test plan.



1.1.2 What is the RCU hardware specification?

The RCU is made in Zhuhai, where the average humidity level is 80% and the climate is tropical oceanic monsoon climate. Each RCU has been strictly inspected and tested and then delivered to customers. The RCU can work properly under the challenging hot and wet environment. Seen from the below table, the RCU can work in most regions in the globe.

The Hardware Specifications are listed as follows.

Physical Characteristics	Specification
Input Voltage	DC 10 - 18 V
Max. Power	45 W
Rated Power	30 W
Average Current	2.5 A @ 12V
Peak Current	4.5 A
Operating Temperature	-20 Centigrade - 70 Centigrade
Humidity	93%RH,+40 Centigrade
Impact	400m/s2
Vibration	1.93m/S2, 5-50Hz, -3dB/octave 20 - 50Hz(1/1 octave with

	the noise decibels)
Dimension (mm)	275mm x 230mm x 120mm
Weight	4Kg
Working Hours After the power failure	Maximum of 30 minutes (power supply provided by internal UPS) and the default setting is 1 minute.

The above specifications are based on the standard RCU configuration: 2G1C+1Modem+3MOS

1.1.3 What is the highest temperature that RCU can resist?

Until Sep., 2009, the environment of the highest temperature that the RCU was applied in is the city Khartoum, capital of Sudan, locating in globally largest desert Sahara.

The client in Sudan is Customer A/Sudan. For testing the heat-resistance of the RCU case and the internal battery life, the Customer A technician fully charged the battery and then placed the RCU on the roof of the building totally exposed to the sun for one hour and 40 minutes. At the same time, voice service is being in test. The temperature on the roof is around 46 degree Celsius. Thus, the temperature of the RCU should be over 60 degree Celsius. After finishing the test that lasts for one hour and 40 minutes, the LED indicator that will be on in case of low voltage was still off. The client is satisfied with the quality test to the RCU.

1.1.4 How to use RCUInfoEditor.exe to build RCU.dat file?

In the Fleet4.0 system, the RCU info is stored in the SQL database. If the RCU is required to be applied in the project, the RCU info file shall be built and then imported into the SQL database using RCUInfoImporter.exe.

The RCU info files are built by Dingli technicians prior to the product delivery to customers. Customers have no right to build RCU info files.

Run the program RCUInfoEditor.exe to modify the **RCUID** and **RCUName**. Set the number of Ports **Port Number**. Edit the port information, especially the **Device Model**, such as Mc8755, QualcommMS, QualcommMS-EVDO and so on.

RCU info can be added and then click the button **Save** to save the setting. Next, click **Files** in the menu and then click **Save**. In the pop-up dialogue, enter the file name (e.g. rcu1) with the extension name *.dat*. Click **Save** to save the RCU info file .

1.1.5 How to use RCUInfoImporter.exe to import RCU information?

The newly-built RCU.dat information file shall be imported into the SQL database.

Run the program RCUInfoImporter.exe and click **Open RCU Info File and Import** to select the RCU.dat info file that needs to be imported in the pop-up window. Then click **Open** and the file will be imported into the database.

After the import of the info file to the database, restart all the related Fleet services so that the RCU.dat file can be used properly.

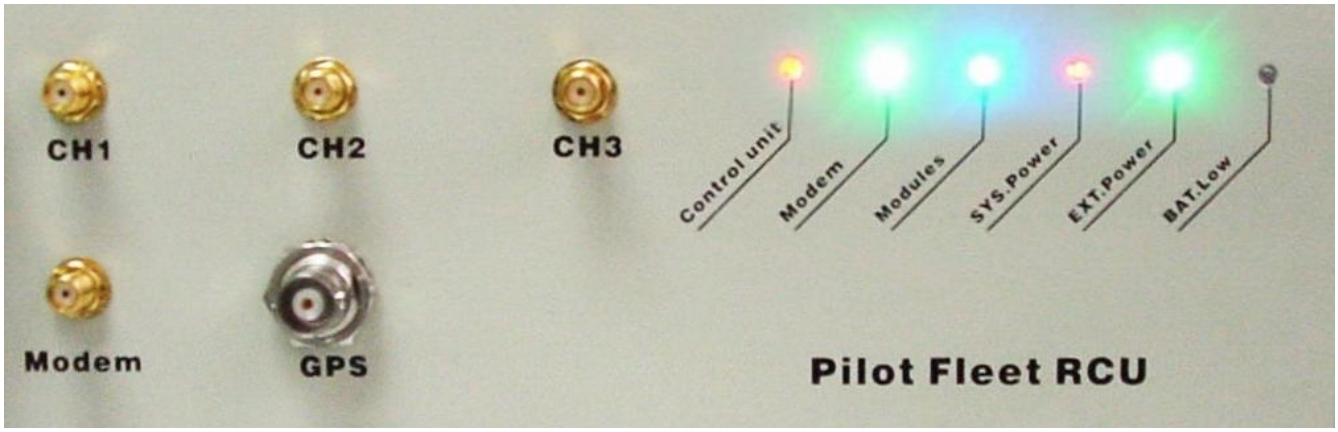
1.1.6 What if the RCU information cannot be deleted with RCUInfoImporter.exe?

In the Fleet 4.0 system, the RCU info cannot be deleted via the Web. If the RCU is not applied in the test project, the program RCUInfoImporter.exe can be used to delete the related RCU info. Provided that deletion fails, please check the

correctness of the RCUID, such as {02326456-0907-4600-0756-104000000917}.

If the RCU has been applied in a test project, test plan or task, the RCU info cannot be deleted. If it is forced to be deleted, unknown errors may occur.

1.1.7 What do the LED lights indicate?



LED Light	Color	Implication	On Normal Working Condition
Control unit	Red	System Working State	Blinking
Modem	Green	Modem Working State	Blinking
Modules	Blue	Module Working State	Constant on
SYS.Power	Red	System Power State	Constant on
EXT.Power	Green	External Power Working Indicator	The light is constant on when the RCU is connected with external power supply. Otherwise, the light is off.
BAT.Low	Blue	Indicator of Low Internal Battery	The blue light is on when the battery is low.

1.1.8 What if the red indicator is off after RCU starts up?

It indicates that the RCU does not start up and the self-test fails. It may be caused by damaged power supply unit, the motherboard breakdown, or any other hardware problems.

The user may cut off the power supply first, and then re-connect it to the RCU. Restart the RCU to see if it can start

up.

If it cannot be solved, please contact Dingli Production Dept.

1.1.9 What if the RCU does not work properly even though the red indicator is on?

The red indicator is on, which means that there is no problem with the power supply unit and the motherboard. The problem may be caused by poor contact between CF Card and the slot, damaged CF card, Modem breakdown, damaged baseboard or SIM card slot.

1.1.10 What if the modem is unable to perform dial test on the condition that the red indicator is on and the green indicator and the blue indicator are both off?

It may be caused by no configuration to dial operation or dial failure.

1. Provided that logs indicate no information about connection request applying the RAS configuration information, please check if the RCU is configured to dial while visiting the data server ;
2. Please check if the ISP file is correctly configured, which should be done before the testing and after the restart of the RCU.

If it is verified that the fault is caused by some certain reasons but not the above ones, please check if the problem lies in the SIM card which may get faulty and cannot work properly for communication, or in the antenna which may not be well connected to the RCU with bad contact. If "SIM Rejected" is reported by the system, please check if the SIM card is not well contacted to the cradle (please try to take it out and then inserted it into the slot again.), or if the charge is overdue (please verify that by using it in the mobile phones to make calls). And also the Pioneer software can be used to troubleshoot the problem if the testing service cannot be performed successfully.

The user may use the telnet command to log in the RCU Host and then use the AT command to check if the Modem works well. If the value returned is OK, it indicates that the Modem works well

1.1.11 What if the red indicator and green indicator are both on but the green indictor is not blinking?

The Green indicator is on, which means that the Modem and the data functions work but it is not connected to the server. The reasons may be as follows.

1. The server is not working well.
2. There is something wrong with the connection between the server and internet.
3. The fixed IP of the server is not corresponded with the server_ip written in the config.txt file, or the port is not 9000.

The user may use the tracert command to check the network segment and troubleshoot problems

1.1.12 What if the external power fails while the RCU is working?

As the default setting is, the test will continue for 15 to 20 minutes in case of the external power failure and then the RCU will automatically stop working.

The time duration and the action after the external power supply is cut off can be configured via the Web in the RCU setting.

Notes: Please set a proper time duration based on the internal battery performance. If the UPS battery runs out in each testing, it may lead to the events, such as Call Drop, Call Block, etc...

1.1.13 What if the RCU restarts repeatedly?

On the condition that RCU gets restarted repeatedly, please try to:

1. check if the **Invalid Duration** configured to the GPS module is at least 600s or above
2. check the log files using **Fleet Tools** to troubleshoot the problem and sort it out

1.1.14 What if the module restarts repeatedly?

On the condition that modules get started repeatedly, please try to:

1. check if the SIM card is inserted into the right slot corresponding to the module that restart repeatedly and ensure that the module is not configured to stop working
2. check if the SIM card is properly inserted into the slot with good contact and ensure that the module is not configured to stop working

Upon the verification that the problem lies in the SIM card or configuration to the module, please stop using the module first. Otherwise the module will get restarted non-stop until the RCU also gets restarted.

1.1.15 What if there is no option to select the designated RCU in the newly-created project?

On the condition that there is no option to select the designated RCU in the newly-created project, please try to:

1. check the information on connection status between the RCU and the server using RCU Client to see if the RCU is properly connected to the server;
2. check if the RCU is in use by other active project. On this condition, please remove the RCU in the project first and then it can be added in the newly-created project.

1.1.16 What if the error *RCUID Fault* is reported?

The error *RCUID Fault* suggested by the LOG may be caused by the mistake when filling out the RCUID or it is because the data service is not restarted.

1. When the engineer corrects the RCU ID using the RCU Info Editor to be in accordance with that on the nameplate, the engineer may neglect the preceding digits that look same as that on the nameplate but not actually and only correct the digits at the end. Or the engineer may make mistakes while transcribing the RCUID on the nameplate to import it to the server. It is recommended to get the RCUID via the Telnet command and then copy it in the textbox to ensure the correctness.
2. The data service is required to be restarted after the RCU is added into the project, or even if the RCUID is correct the message "RCU Rejected" will be reported by RCU Tool. It will be troublesome to restart the RCU until the fault emerges.

1.1.17 What if the DROP events occur?

In case of Dial drop, please check if the network quality is good enough for dial and then check if the Time Out value configured in the test template is too small.

In case of E-mail POP3 drop, please check if there is any email in the email server used by the engineer. It is

recommended to send some emails first to see if it is OK.

In case of SMS drop, it may be caused by mistaken SMS Center Number. It is recommended to make clear of the Mobile Number Location and its corresponding SMS Center Number.

1.1.18 What if the RCU does not perform test plan?

On the condition that the RCU does not execute the test plan, it may be caused by the following reasons.

1. The RCU is not connected to the server. Please reboot the RCU and then check the log to see if the test plan is being executed.
2. The time setting for test is invalid, in which situation the LED light that indicates the working status of modules is off and the log *send data* appears that means the test plan is required.
3. The previous data test is not accomplished so that the new test plan cannot be executed. Please click the button **Skip** to end the previous test task.
4. Check the configuration to RCU settings. If the testing is required to be started upon the system start-up, it is needed to tick the option *Test while connect to central server*.

1.1.19 What if the RCU is unable to connect to the server?

Please check if the server works properly.

If yes, then check if the server address and port is correctly filled in the configuration.

If yes, then check if the modem is on by dialing the phone number of the SIM card used as Modem to see if there is alerting.

If the Modem is verified to be on, please check, on the spot, if there is something wrong with the dial port used by the RCU or the modem hardware.

If the problem lies in the port configuration written in the config.txt file, please replace the config.txt file and then restart the RCU. Then it can be connected to the server indicated by the second blinking green LED indicator.

1.1.20 What are the notices for RCU in-vehicle installation?

Note: The following notices are applicable for long-term use of in-vehicle RCU.

1. Use a rack or a rope to fix the RCU in the bus to resist vibration during the running of the bus. And put a soft cushion on the contact surface between the RCU and the ground in the bus.
2. Connect the power supply to the line controlled by the ignition switch and don't connect it to the storage battery.(It is essential to ensure that the power is not supplied to the RCU until the bus starts.)
3. Usually, the brown line shall be connected to the positive electrode, and the blue one shall be connected to the negative electrode (Note: Please use a multimeter to conduct the verification work to judge the positive and negative electrode in advance).
4. Ensure that the GPS antenna is correctly connected to the right interface and there is nothing in front of the antenna to block the satellite signal. Also the GPS antenna shall not be by the window. It is recommended that the end part, which is close to the RCU that the GPS is connected to, of the wire of GPS can be knotted loosely for distinguishing the GPS wire and the wires connected with modules.

5. The electrical transformer used for converting 24V voltage to 12V voltage is required to be installed in the bus.

6. Please record the necessary information related to the RCU installation for future RCU management, such as the licence ID of the vehicle, the driver's name and mobile number, the placement of the RCU, and so on.

1.1.21 Why is the RCU in IDLE status, seen on the monitoring interface, but it is actually in operating?

Provided that there is no data transmitted from the RCU to the data server within 60s, the RCU status will be judged as **IDLE** by the data service.

Causes may be as follows.

1. The Modem in the RCU gets faulty so that the data cannot be transmitted. Or due to poor data network, the modem cannot transmit the data and get halted.

2. The power supply of the RCU gets faulty since the internal battery is not well charged with the vehicle power. On this condition, the RCU will power off. And within 60s there is no data in transmission, the RCU status will be judged as **IDLE** by the data service.

1.1.22 How to lock and unlock the frequency band while using the 5210 module in the RCU to perform the test

Enter *telnet 219.198.245.12* in the **Command Prompt** as well as the user name *root* and the password *insight*. Then the RCU console command line appears.

The following instruction is especially applicable for 5210 module.

Check if the module can be correctly identified, in the way of comparing the info in the *devices* file.

Use the command */test/stopwork* to stop all the work after startup.

Use the command *Cat /dos/config/devices* to view the content in the *devices* file.

```
[root@tiny (pts/1) /]# cat /dos/config/devices
power=/dev/ttyS11
device0=/dev/ttyS4
device1=usb-0000:00:1d.1-1.1
device2=usb-0000:00:1d.1-1.2
device3=usb-0000:00:1d.1-1.3
device4=usb-0000:00:1d.0-1.2
```

Use the command *Cat /proc/tty/driver/usbserial* to view the usb port info.

```
[root@tiny (pts/1) /]# cat /proc/tty/driver/usbserial
usbserinfo:1.0 driver:2.0
0: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.1-1.1
1: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.1-1.1
2: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.1-1.1
3: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.1-1.2
4: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.1-1.2
5: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.1-1.2
6: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.1-1.3
7: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.1-1.3
8: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.1-1.3
9: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.0-1.2
10: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.0-1.2
11: name:"GSM modem (1-port)" vendor:05c6 product:6000 num_ports:1 port:1 path:usb-0000:00:1d.0-1.2
```

In the above picture, it shows that there are three same address *0000:00:1d.1-1.1*. Take the first digit in the first address *0* .

/dos/tip /dev/ttyUSB0

Access to the port. Enter *at* and press the **Enter** key. The returned *ok* indicates the module works properly.

Enter **Atd** and then add a phone number at the end (e.g. atd0125000558). Press **Enter** key to dial the number.

Enter **At+cimi** to check if the card is identified.

In the same manner, if the second port needs to be locked, enter the command */dos/tip /dev/ttyUSB3*. If it is the third port, enter the command */dos/tip /dev/ttyUSB6*. And if it is the forth port that needs to be locked, enter the command */dos/tip /dev/ttyUSB9*.

Lock the frequency band:

At+bnd? And press **Enter** key.

If *+BND:0* is returned, it indicates the dual band.

At+bnd=6 to save the band of 1800M

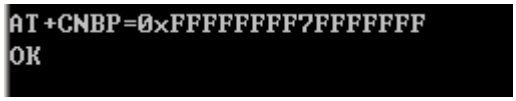
Please be noticed that on the condition that band of 1800M or 900M has been locked and another frequency band needs to be locked, the command *at+cnbp=0xFFFFFFFF7FFFFFFF* shall be executed first.

At+bnd=5 to save the band of 900M

Unlock Command:

at+cnbp=0xFFFFFFFF7FFFFFFF

The command meaning: to apply any available frequency band in the network testing.



1.1.23 How to use the command line on the RCU Host?

Please refer to the document *User Manual - Pilot Fleet RCU V1.1.doc*. (The document is confidential, for internal use only.)

1.1.24 RCU Testing Data Volume

The following table presents the original data volume generated from service test performed by kinds of modules in different networks.

Module	Service	Data Volume(MB/h) (Complete)	Data Volume(MB/h) (After Filtering)
ZTE EVDO Module	1X Voice Service(Lock 1X)	0.68	N/A
	1X Data Service(Lock 1X)	2.86	
	EVDO Data Service(Lock DO)	16.59	6.94
WCDMA	GSM Voice Service(Lock	1.08	N/A

SIM 5210 Module	G)		
	GSM Data Service(Lock G)	3.71	7.54
	WCDMA Voice Service(Lock W)	19.89	2.97
	WCDMA Data Service(Lock W)	29.23	3.8
TD-SCDMA T3G Module	GSM Voice Service(Lock G)	1.8	
	GSM Data Service (Lock G)	6.0	
	TD Voice Service(Lock TD)	1.8	4.52
	TD Data Service(Lock TD)	6.0	6.98
	TD HSDPA	6.0	
GSM MOTO Module	GSM Voice Service	0.25	N/A
	GSM Data Service		N/A

Note: some info till remains unknown.

1.1.25 What if the power line gets heated and the RCU cannot power on after the power line is connected to the vehicle power?

The RCU power line has the positive electrode and the negative electrode. It is not allowed to take apart the connector of the cigar lighter and connect the power line to the vehicle power. It is recommended to distinguish tthe positive electrode and the negative electrode of the power line using a multimeter. Please contact Dingli technicians if necessary.

1.1.26 Why is the stable 12V power required for the DT test?

Provided that the 12V power output from vehicle power is not stable during the DT, the RCU may restart frequently so as to affect the testing result.

1.1.27 What if *DSP error* is frequently reported during the drive test?

DSP error (cause value 3. Actually, it is caused by hang-up calls before the RCU shuts down) may be frequently reported due to the RCU shutdown after the failure of the external power. Information, similar as the following log, may appear on the server.

4/22/2010 3:39:25 PM;Warn;SDHW-3;Alarm;4/22/2010 12:39:22 PM, SDHW-3:0, 0x1502, External power off

4/22/2010 3:39:25 PM;Warn;SDHW-3;Alarm;4/22/2010 12:39:22 PM, SDHW-3:0, 0x1504, Low UPS battery

4/22/2010 3:41:09 PM;Warn;SDHW-3;Alarm;4/22/2010 12:41:07 PM, SDHW-3:0, 0x1506, Power lose

On the DT site, accidents of this kind usually happen. It is verified that the 12V vehicle power is not stable and the low current cannot charge the internal battery in the RCU. After the RCU operates for several times, the internal battery runs out on the condition that it cannot be charged effectively. Then, the RCU will shut down immediately in case of the external power failure, which may lead to frequent restart of the RCU in the further testing. And the testing result will be inaccurate. Please ensure the stability of the external power supply. If necessary, use the 12V automobile storage battery to provide 12V DC power.

1.2 Questions on Web Client

1.2.1 Why is the message *Error: User has signed on* reported when sign in the Web Client?

Do not click the button to close the window directly instead of logging out of the Web Client by clicking

. Otherwise, IIS will be restarted and in a certain time the user may not sign in to the Web again. It is still unsolved by our R&D team.

1.2.2 Why do gibberish texts appear on the Web Client on the Windows operation system of English version?

Click **Control Panel** > **Date, Time, Language, and Regional Option** > **Regional and Language Option**; then click the tab **Language** and tick the option **Install files for East Asian Language**. Click the tab **Advance** and choose **Chinese (PRC)** in the dropdown list.

1.2.3 How to download the statistical report after the report plan has been configured?

Click the tab **Report Task** and search the one by ticking the option **Auto** and then clicking the button **Search**.

1.2.4 How to set the email account for sending the auto statistical reports to the designated email account?

An email account shall be used for sending the statistical reports automatically generated in the system by the pre-defined configuration. It can be set via the Web Client. Click the tab **Configuration** in the left column and click the **System Setting** in the dropdown menu. Then configure **SMTP setting**.

SMTP Setting shall be configured with **Server address**, **Server Port**, **Account**, **Password**, **Sender** and the option whether to **Need authorization**.

Server address shall be the server IP but not the domain name. **Server port** is the port via which the SMTP of the server sends emails. **Account** is the email account. **Sender** is the email content that will be displayed in the email. Whether to **Need Authorization** depends on the server. Currently, most of mail servers need authorization.

Also, the **SMTP setting** can be configured for sending auto statistical results and alarming.

1.2.5 How to set an email account for sending alarming and another email account for receiving alarming?

An email account shall be used for sending the statistical reports automatically generated in the system by the pre-defined configuration. It can be set via the Web Client. Click the tab **Configuration** in the left column and click the **System Setting** in the dropdown menu. Then configure **SMTP setting**.

SMTP Setting shall be configured with **Server address**, **Server Port**, **Account**, **Password**, **Sender** and the option **Need authorization**.

Server address shall be the server IP but not the domain name. **Server port** is the port via which the SMTP of the server sends emails. **Account** is the email account. **Sender** is the email content that will be displayed in the email. Tick the option **Need Authorization** if the server requires. Currently, most of mail servers need authorization.

Also, the **SMTP setting** can be configured for sending auto statistical results and alarming.

1.2.6 How to effectively generate the statistical results based on data collected by the RCU in a designated region?

Select an enclosed region using the Navigator software and a txt file will be exported. In the Web Client, click **Configuration** > **Map Information** > **Add** > Choose **Region** in the dropdown textbox > **Save** > **Upload the region file**.

Then when configuring the statistical condition, the *region* info can be added for statistical analysis.

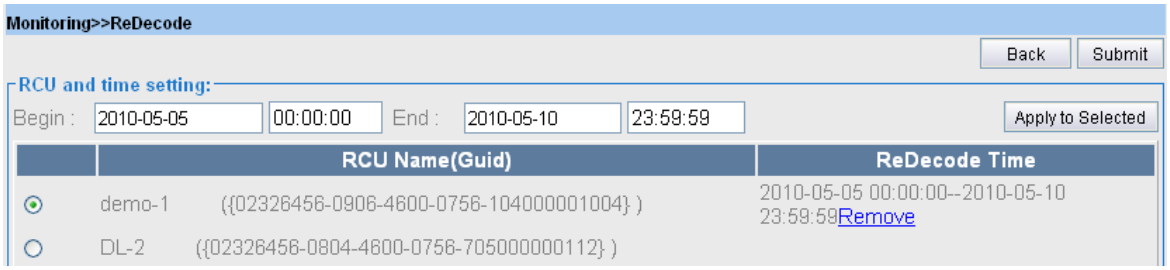
1.2.7 How to validate the test plan in real time on the Web?

Sign in the Web and click the tab **Monitor** in the left column. And then click the tab **RCU real-time** in the dropdown menu. Tick the RCU(s) of which the test plan(s) has been re-configured and click the button **Reset**. Then the test plan(s) will be validated in real time.

1.2.8 How to re-decode the data, transmitted from a certain RCU in a certain time period, for statistic service?

Sometimes, it is necessary to re-decode the original data, transmitted from a certain RCU in a certain time period, for statistic service and for generating a new statistical report.

Sign in the Web and click the tab **Monitor** in the left column. And then click the tab **Decode Data** in the dropdown menu. Then in the page click the button **Redecode Data**. Tick the RCU and select the time period. Click the button **Apply to selected** and then the button **Submit**.



Use the Fleet Tools to view related log to see if re-decoding is successfully finished. After data is completely re-decoded, re-submit the report task and a new statistical report will be generated.

1.2.9 What if the test plan cannot be deleted on the Web?

Since the history test plan info is required to be stored, the test plan cannot be deleted, even if it has been performed by the terminal and is of no use.

1.2.10 What if the RCU information cannot be deleted on the Web?

When the RCU info has been added in other settings, the RCU info shall not be deleted. If it is forced to be deleted from the database, some unknown error may occur.

1.2.11 How to check which project the RCU info is added in on the condition that there are handfuls of projects and it is not easy to search the designated RCU?

Click the tab **RCU Settings** in the left column. Users may search the RCU by RCU name. And in the column under the tab **Current Project**, users get the project info that the RCU is involved in.

1.2.12 What if error messages are reported upon clicking any button on the Web no matter whether the Web page is in refreshing?

When the web page is not completely refreshed, the error message may be reported by clicking any button. Please avoid any maloperation of this kind. If the refreshing status lasts for a long time, refresh the web page again. If the problem still exists, please check the network connection and check if the network speed is stably fast enough.

1.2.13 What if the Web homepage cannot be open in the IE browser on the windows server 2003 ?

Click **Internet Properties** option and click the tab **Security.** Then click the icon **Trusted Sites** to add the IP address or domain name to the zone.

1.3 Questions on Air Fleet

1.3.1 Why does the RCU icon stay still on the AirFleet even though the Fleet Tool suggests the RCU is transmitting the rcu files during the drive test in real time?

When the RCU starts up and begins working, it may transmit the data first, transmission of which is not finished last time. On this condition , the RCU track may be not viewable or viewd as unmatchable with the actual DT track via the AirFfleet.

Usually, the RCU has been debugged indoor in advance and then starts the DT work. If there is no GPS signaling indoor before the RCU begins to transmit the data, when the DT starts, the data transmission speed of the Modem may be very slow. On this condition , the RCU track may be not viewable or viewd as a static point via on the map via the AirFfleet. In case the problem that the RCU track is not viewable in the AirFleet is confirmed not to be caused by data upload delay, the fault may lie in the anomalous real-time data decoding of the data service or the GPS signaling. Users may restart the data service, restart Web IIS service or restart the server. Also, check the contact of between the GPS antenna and the GPS as well as between the antenna and the RCU case, and check if there is anything blocking the GPS signaling.

1.3.2 What if the AirFleet installation file cannot be downloaded on the web or the installation fails with a pop-up message suggesting that the AirFleet.air file is damaged ?

Users may search the installation files in the Web installation directory of the server. Usually, the directory is *C:\FleetWebSystem40\flex\public* where the file *AirFleet.air* locates. Copy it, paste it in a folder and run it to install the program.

1.3.3 What if the downloaded AirFleet.air program does not work and a message appears suggesting to select an application program to open it?

Since the AirFleet applies Flash technology, the AIR operating environment issued by Adobe company is necessary. Users may search **Adobe AIR** on the Internet. The newly-released version is **1.5.2.8870**.

For example: *http://www.onlinedown.net/soft/64637.htm*

Here is an introduction on Adobe Air.

Adobe Integrated Runtime (AIR) is a cross-platform runtime environment developed by Adobe Systems for building rich Internet applications using Adobe Flash, Adobe Flex, HTML, or Ajax, that can be deployed as a desktop application.

AIR enables you to work in familiar environments, to leverage the tools and approaches you find most comfortable. By supporting Flash, Flex, HTML, JavaScript, and Ajax, you can build the best possible experience that meets your needs.

For example, applications can be developed using one or a combination of the following technologies:

*Flash / Flex / ActionScript

*HTML / JavaScript / CSS / Ajax

*PDF can be leveraged with any application

As a result, AIR applications can be:

*based on Flash or Flex. Application whose root content is Flash/Flex (SWF)

*based on Flash or Flex with HTML or PDF. Applications whose root content is Flash/Flex (SWF) with *HTML (HTML, JS, CSS) or PDF content included

*HTML-based. Application whose root content is HTML, JS, CSS

*HTML-based with Flash/Flex or PDF. Applications whose root content is HTML with Flash/Flex (SWF) or PDF content included

1.3.4 How to view the cell link between the RCU and the BS?

Firstly, please import the site database and ensure that the database format, including the header, is same as the template in advance. Click the **RCU** in the left column and the **RCU** icon shows on the map. Click the **RCU** icon and a prompt box

pops up. Then click the arrow **>** and tick the option **Cell Link** in the popup window. Finally, the user may view the cell link which indicates which base station controls the serving cell that the RCU module is working in.

1.3.5 What if the RCU name is displayed as gibberish on the AirFleet?

Due to the technical limitation of the encoding method, only the English letters and figures can be used for name the RCU. If there are Chinese characters in the name, it will be displayed as gibberish in the AirFleet and may cause problems related to coding identification in other services.

2 Questions on Server Installation, Operating System and Servers

2.1.1 Which server operating version is applicable?

It is required to use the version of Windows2003Server as the operating system of servers in the Fleet system. If applying operating system of other versions, it may cause some security problems or unknown errors.

2.1.2 How to install the server?

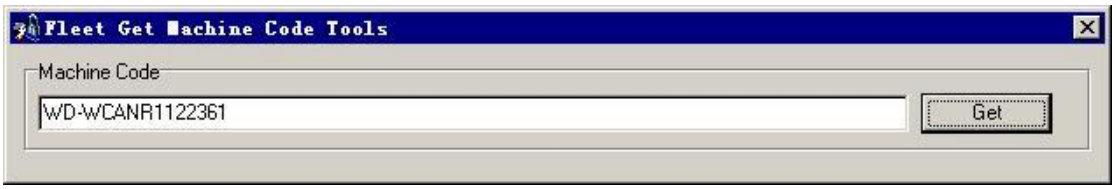
Generally, before installing operating system in the servers, the assorted Startup Disk is needed for starting servers. If there is Raid in the disk, Raid driver will be built automatically.

After installing kinds of drivers with the Startup Disk, select the operating system version in the interface of the Startup Disk, such as Windows2003server or Windows2000server. Click the one that you need to install and a message suggesting *Please insert an operating system disk* pops up. Then follow the general steps to finish installing the operating system in the servers.

2.1.3 How to get the server registration file fleet.lcf?

Add the function of Machine Lock via the License control.

In commercial application, the module can be locked to 2G/3G network (Run the program *GetMachineCode.exe* under the **Bin** folder in the installation directory.)



Please send the **Machine Code** to Dingli technicians or customer service representatives to apply for then Fleet.lcf file. In case of the incorrect Fleet.lcf, the servers cannot be started and work properly.

2.1.4 What if the RCU restarts frequently and some anomalous events occur during testing due to no remaining storage space?

When there is no remaining storage space in data server, error message suggesting that new files cannot be created will be returned from the data service. And after trying for several times, the RCU will restart.

2.1.5 What if the system fails on the condition that there is no remaining storage space for saving log in SQL database?

Connect to the SQL database and run the related SQL statement.

Run the program SQL Server Management Studio Express to login the database. After login succeeds, press the key **Alt+N** and click the button to open **New Connection (N)**. Copy the following three statements in the textbox and press the key **Alt+X** to execute the command.

DUMP TRANSACTION [Fleet4DB] WITH NO_LOG

BACKUP LOG [Fleet4DB] WITH NO_LOG

DBCC SHRINKDATABASE([Fleet4DB])

Fleet4DB is the database name. Please replace it with another defined name.

2.1.6 What if the login fails on the condition that the SQL database user is locked?

The default user name is *sa*. Provided that the user is locked because incorrect password is entered for successive several times or due to some other reasons, data service and other services partly using SQL database cannot start up properly.

Solution to the problem that the user account *sa* is locked is as follows.

Run the program SQL Server Management Studio Express and use the Windows Authentication to login the database. After login succeeds, press the key **Alt+N** and click the button to open **New Connection (N)**. Copy the following three statements in the textbox and press the key **Alt+X** to execute the command.

ALTER LOGIN sa ENABLE ;

GO

ALTER LOGIN sa WITH PASSWORD = '<password>' unlock, check_policy = off, check_expiration = off ;

GO

2.1.7 What if the Web page cannot be open after the IIS installation on the server?

Note: The fault occurred in the Sudan/Customer A project.

Web page cannot be displayed after the installation of the IIS in the server. It is verified by our R&D Department that there is something wrong with the code in the IIS compilation. Time: 2009-08

Please modify the configuration in Aspnet.config file under the directory *C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727*. Configure the **legacyUnhandledExceptionPolicy** as **True**, which is related to the processing mode to the unprocessed anomalous events in .NET Framework 2.0. The default policy to these events is to end working process.

2.1.8 What are the notices for AirFleet online installation?

Problem:

While installing the airfleet on-line, error is reported (The airfleet.air installation file has been damaged) and AirFleet cannot be installed successfully.

Click **Control Panel** > **Management Tools** > **Computer Management** > **Internet Information Services (IIS) Manager** > **Website** > **FleetWebServer40**; and then right-click *FleetWebServer40 and select the Properties*.

Click the tab **http** and then click the button **MIME Type**. In the pop-up window, users may create a new MIME Type (the extension name is *air*, and the MIME will be defined as **.air*)

Problem:

During installation of the Air Fleet, the web page shows the alarm "Error! This air proxy swf won t load properly when this demo is run from the local file system".

Since the GoogleMap is applied in AirFleet, it is required that the GoogleMap server shall be visited via the internet. Please check if the computer can be connected to the internet. This error will be reported in case of no internet connection.

Enter the installation directory of AirFleet, which is *C:\FleetWebSystem40\flex\public* by default. Use the Notepad to open the file *install.html* and then find the below passages.

// these parameters are required for badge install:

so.addVariable("airversion", "1.0"); // version of AIR runtime required

so.addVariable("appname", "My Application"); // application name to display to the user

*so.addVariable("appurl", "**http://fleet4test/flex/public/AirFleet.air**"); // absolute URL*

Replace the *fleet4test* in ***http://fleet4test/flex/public/AirFleet.air*** with the IP address of Web server. Take the *localhost* for example. The content will be that as the following passage shows after the modification.

// these parameters are required for badge install:

so.addVariable("airversion", "1.0"); // version of AIR runtime required

so.addVariable("appname", "My Application"); // application name to display to the user

*so.addVariable("appurl", "**http://localhost/flex/public/AirFleet.air**"); // absolute URL*

Use the Notepad to open the file *install.html* and then find the below passages.

<?xml version="1.0" encoding="ISO-8859-1"?>

<currentVersion version="1.0"

*downloadLocation="**http://fleet4test/flex/public/AirFleet.air**"*

forceUpdate="false"

message="first version"/>

Replace the *fleet4test* in ***http://fleet4test/flex/public/AirFleet.air*** with the IP address of Web server. Take the *localhost* for example. The content will be that as the following passage shows after the modification.

<?xml version="1.0" encoding="ISO-8859-1"?>

<currentVersion version="1.0"

*downloadLocation="**http://localhost/flex/public/AirFleet.air**"*

forceUpdate="false"

message="first version"/>

2.1.9 What if there is no response upon clicking the Login button on the AirFleet and RCU list cannot be displayed?

Modify the web properties in the Web server so that the AirFleet works with the *localhost* or *127.0.0.1*.

Web Site Properties > **Web Site** > **IP address**: modify it as *All Unassigned*.

If the extranet cannot be mapped to the default port 80 in the Web service, the port shall be modified to be in correspondence with the one mapping with the extranet.

For example:

WEB: 219.239.189.94:10011 corresponding to 172.16.1.5:80 (modify it to 10011)

Then users may login the AirFleet via the extranet of IP: 219.239.189.94:10011 and monitor the RCU status in real time.

WEB: 219.239.189.94:8000 corresponding to 172.16.1.5:80(modify it to 8000)

Then users may login the AirFleet via the extranet of IP: 219.239.189.94:8000 and monitor the RCU status in real time.

Similarly, for visiting the Web service, please modify the newly-updated web site TCP port.

Web Site Properties > **Web Site** > **TCP Port**: modify it as *10010* or *8000*.

2.1.10 What if there is no public IP and ADSL Modem?

On the condition that customers cannot provide the public IP and ADSL modem, we shall request the customer to offer a fixed IP in the Data Network. For example, in a certain project, the customer has no fixed public IP resources and ADSL, and then we request the customer to offer us a fixed IP in the sub network and bind the IP to the Fleet Server via a Router. With the previous setting, the RCU can be connected to the server via the GPRS/EDGE Gateway and the Fleet server will be accessible to the Client via the subnet.

2.1.11 Why the connection to internet fails even though the server TCP/IP is correctly configured?

The problem is that the user cannot ping other IP addresses from the server and the Client cannot be connected to the server even if the TCP/IP is verified to be configured correctly with the Ipconfig command

Probably, the Data and Switching Department in the client company did not finish the required preparation work. Please check the line first and then check the data setting and the router setting.

In the actual network formation, problems may be possibly caused by improper line configuration and error data. It is necessary to remind the customer to request its Data & Switching Department to troubleshoot the problem and follow up the process validation.

2.1.12 Why the connection to some ports fails even though the server TCP/IP is correctly configured?

It may probably caused by the setting that software/hardware firewall disables some ports. Please check the Windows Firewall setting, and then check the anti-virus software and software firewall setting. If the problem is still unsolved, please request the customer to allow you to check the firewall settings in the server room.

Or try to alter the port. For example, use the port 8000 instead of the port 9000.

In some projects, our technicians found that the port 9000 cannot work while the port 8000 works.

2.1.13 What if the RCU cannot be connected to the server due to MTU fault on the condition of good network quality?

Problem: On the condition that Internet is accessible to the server and clients can access to the server, the RCU cannot be connected to the server during the testing.

Possible cause: the size of MTU (Maximum Transmission Unit) is not properly configured. The problem occurred in the project of Fujian Mobile and Shantou Mobile.

Solution:

1. Search the info of MAX MTU Size using ping command

ping -l mtu_size-28 -f your_gateway

The returned message begins with 1500 and ends with the error message " the Packet needs to be fragmented but DF set".

IP and ICMP protocol applies 28 bytes. Generally, PPPoE is 1492.

Please see the below example and in the example MTU=1500 and 1500-28=1472. When it is set as 1472, the ping command works. And when it is set as 1473, the ping command fails.

C:\Program Files\Microsoft Visual Studio 8\VC>ping -l 1472 -f 172.16.1.1

Pinging 172.16.1.1 with 1472 bytes of data:

Reply from 172.16.1.1: bytes=1472 time=2ms TTL=128

Reply from 172.16.1.1: bytes=1472 time=1ms TTL=128

Ping statistics for 172.16.1.1:

Packets: Sent = 2, Received = 2, Lost = 0 (0% loss),

Approximate round trip times in milli-seconds:

Minimum = 1ms, Maximum = 2ms, Average = 1ms

Control-C

^C

C:\Program Files\Microsoft Visual Studio 8\VC>ping -l 1473 -f 172.16.1.1

Pinging 172.16.1.1 with 1473 bytes of data:

Packet needs to be fragmented but DF set.

Packet needs to be fragmented but DF set.

Ping statistics for 172.16.1.1:

Packets: Sent = 2, Received = 0, Lost = 2 (100% loss),

Control-C

^C

C:\Program Files\Microsoft Visual Studio 8\VC>

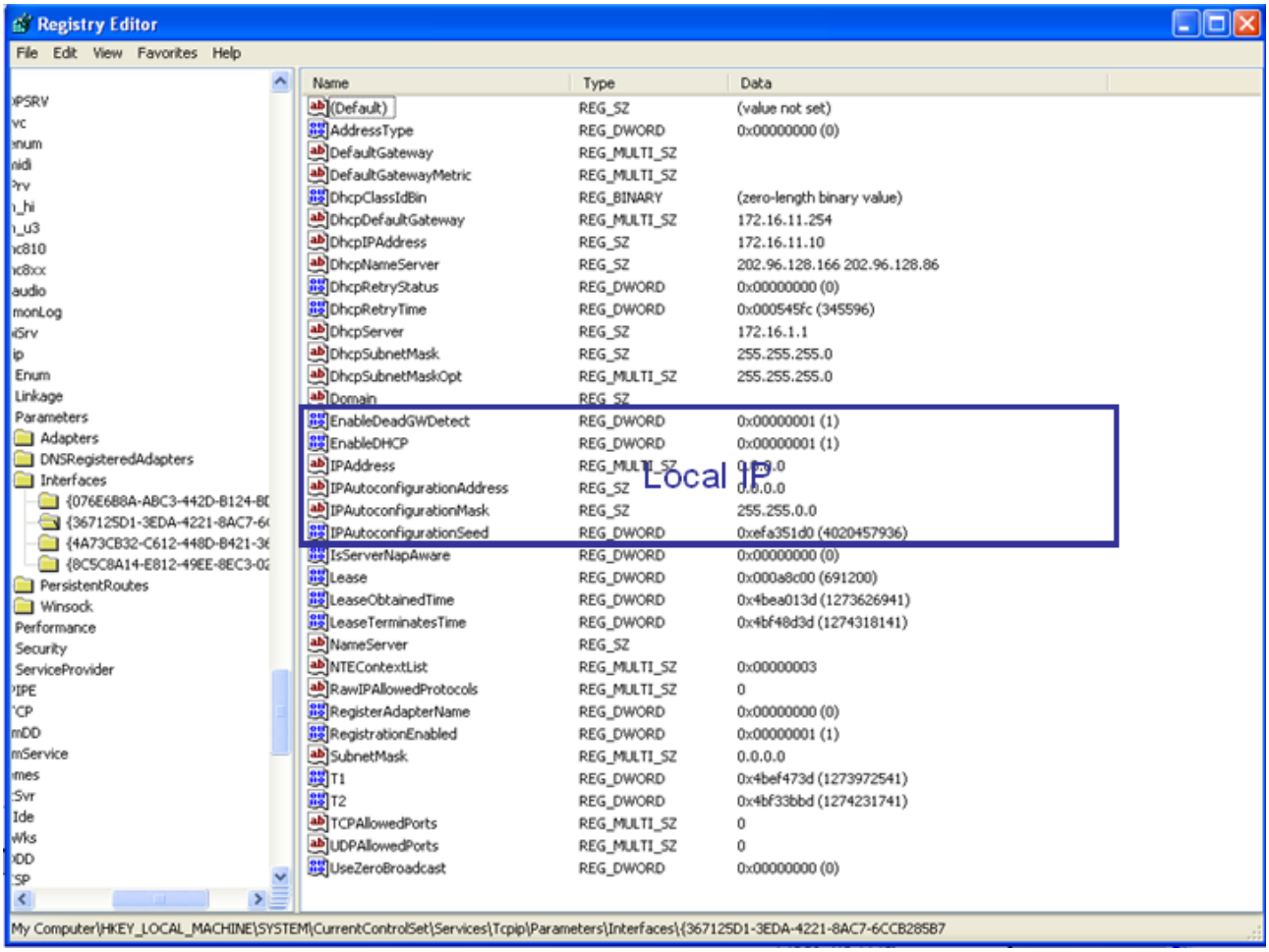
2. Modify the MTU of the server:

Add related info into the Registry in the Windows 2003/XP

Click **Run** and enter *regedit* in the textbox.

[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\Interfaces]

In the above directory, there may be many catalog. Please scan it and find the one of the local IP. Then add the MTU key and key value. See below.



Suppose that the maximum MTU value is 1450.

If there is the MTU key, modify it to *1450*. If not, click the right mouse button and select **New** in the pop-up menu. Then choose **DWORD Value**. The newly-created key name is MTU and the value is *1450*.

After finishing the modification, please restart the PC.

2.1.14 What if the user cannot login the server on the remote desktop?

It is recommended to exit the remote login by clicking the icon "Log out" but not closing the window directly that may lead to some anomalous operation with one link occupied.

Modify the Local Security Policies and Group Policy.

1. **Start** > **Control Panel** > **Administrative Tools** > **Local Security Policy** > **Local Policies** > **Security Options** > *Microsoft network server: Amount of idle time required before suspending session*

   Default Setting: *15* minutes

   Modify it as needed (the amount of idle time before the auto disconnection).

   > *Network security: Force logoff when logon hours expire*

   Default Setting:*Disabled*

   Modify it to be *Enabled*.

2. Modify it in the terminal service configuration: **Run** > *Tscc.msc* (Terminal Service Configuration) > **Connect** > Double-click **RDP-Tcp** or Right-click **Properties**. Click the tab **Network Card** and then modify the **Maximum Connections**.

Modify it as needed, such as *5*. The value cannot be too large. Otherwise, more system resources will be occupied. The value is related to the system version and amount of authorized users. Even if setting it to be unlimited, users may not login the Windows system on the condition that the amount of users exceeds the authorized user amount.

3. Ensure that Group Policy is higher in the list than the Terminal Services Configuration, having higher priority

In case that the Group Policy is activated, options related to the Terminal Services Configuration shall not be modified. **Run** > *gpedit.msc* > **Computer Configuration** > **Management Template** > **Windows Components** > **Terminal Services** > Double click **Limit Number of Connections** > Choose **Enabled** > Fill it out with the maximum connections, such as *999999*(unlimited).

Another method is to restrict each user to use a single session. On this condition, when another user login the system, the previous one will be forced to exit.

Modify it in the terminal service configuration: **Run** > *Tscc.msc* (Terminal Service Configuration) > **Server Configuration** > *Restrict each user to use a single session* > Set the property as **OK** .

3 Questions on Fleet Services

3.1.1 What if the data service cannot be started due to the expiration of the license file fleet.lcf?

The valid period, authorized numbers of users who can use the Fleet system and authorized number of RCUs that can be applied in the system have been written in the Fleet.lcf license file in advance. Provided that some setting related to any one of the above three conditions exceed the authorized constraint, the data service will not be started. The relative log can be viewed in the log file (FleetTerminalService.log) of data service.

3.1.2 How to stop/start all the services easily?

After finishing the installation of the Fleet system, click **Start** > **All Programs** > **Pilot Fleet** > **Start Fleet Services.bat** / **Stop Fleet Services.bat** to start/stop all the Fleet services easily.

3.1.3 How to rebuild the index of original data?

Method 1:

Use the Fleet Tools. Click the icon **Data** on the left column and then click the button **Rebuild** on the top of the page. If there is relatively massive original data, please wait a while.

Method 2:

Sign in the Web and click **Monitor** label on the left column. Next, click **Original Data** > **Rebuild**.

3.1.4 How to rebuild the index of statistical data?

Sign in the Web and click **Monitor** on the left column. Next, click **Decoded Data** > **Rebuild Index**.

3.1.5 Fail to generate statistical reports

Restart the services and application programs in the statistics server.

Internet (IIS) > Right click **All Tasks** > **Restart IIS**

3.1.6 How to analyze the coverage by distance?

Currently, the coverage by distance can be analyzed to the GSM network and that to the CDMA network may be available in Oct.2009. In the default Excel reports, the KPI is named as *GSM Coverage By Distance (%)*.

3.1.7 What is the difference between the statistical result generated on the Web and that generated on the Navigator

The statistical process to each KPI event in the Web is based on the analysis to the events reported by the RCU.

And the time period of each KPI event analyzed in the Navigator is computed based on the related signaling.

For the same data, the statistical results generated via the Web and via the Navigator are mostly the same. But if the event reported by the RCU is incomplete or some events get missing during the transmission, it may cause the difference between the statistical results obtained via the Web and via the Navigator.

The solution is being in validation by our R&D Department.

3.1.8 How to view the statistical decoded data?

Under the installation directory of the Statistics Service, find the program *DDMTest.exe* and run it.

Click the button **View** on the page under the tab **Decoded Data File Testing** and open the statistical decoded data file (**.ddf*, which locates under the directory specifically saving the statistical decoded data). Then click *Read All* until all the info involved in the statistical decoded data file appears, such as Event and network parameters.

Note: Dingli will not provide this tool to customers. And it is only offered to Dingli technicians for troubleshooting problems related to statistics.

3.1.9 What log files reflecting the Fleet system operation status?

Under the installation directory of Data Service, log files *FleetTerminalService.log* related to data service can be viewed.

Under the directory of *ReportSvcLog*, log files related to report service can be viewed and there is one log file of the same type generated in this folder per day.

Detailed logs produced by Data Service, including alarms and logs related to operation status of each RCU, can be viewed in the *Logs* folder under the directory saving original data.

Log files related to statistics service can be viewed in the *StatLogs* folder under the directory saving statistical decoded data.

In addition, it can be achieved by clicking **Monitor** on the left column in the Web and then clicking **View Log** to view the log info of different types.

3.1.10 How to disable the Windows Debugger on the condition that the Fleet services cannot be started after anomalous events occur?

On the condition that the anomalous events are reported in Fleet services, the Windows Debugger will be activated as it is the default setting in Windows System. If authority level is limited which may cause that the debugger will not be activated successfully, the Fleet services will be aborted.

Solution: Disable the VsJitDebugger in NET (VsJitDebugger will be auto installed during the installation of NET Framework)

Steps: Open the **Visual Studio**, and click **Option** in menu. Choose *debugger* file and the *Real-time* page to delete the related programs, including *Custody*, *Host*, and *Script*. Click the button **OK.** (There is no need to follow this step if the Visual Studio is not installed in the PC.)

Use the REGEDIT to delete the following registry keys.

[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\AeDebug]

"Debugger"="C:\WINDOWS\system32\vsjitdebugger.exe" -p %ld -e %ld

If *"Debugger"="Other content",* delete it or set it as NULL.

[HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\.NETFramework]

"DbgManagedDebugger"="C:\WINDOWS\system32\vsjitdebugger.exe" PID %d APPDOM %d EXTEXT "%s" EVTHDL %d

After finishing the above operation, there will be no debugger in Windows system.

3.2 PESQ Service

3.2.1 What if the voice card does not answer the call and there is no PESQ Score displaying on monitoring tool on the condition that PESQ service driver and programs are correctly installed and the alerting can be verified by the testing program?

Analysis procedure:

Check if the programs and driver are correctly installed. Then use the program Procexp.exe to check the TCP connection of the PESQ service. It is found that there is no connection to data service though the connection is properly configured. The problem may be caused by the setting that the compatible mode is not activated in the data service.

Cause:

During the sound playing and recording, the PESQ service interacts with the Data service for synchronizing time so as to ensure that the time difference between the RCU and the PESQ service is less than 2 s that is essential for preciseness of voice testing.

Solution:

Activate the Compatible Mode of the data service.

3.2.2 What if the voice card initialization fails on the PESQ service on the condition that the PESQ service driver and programs are correctly installed and the dial can be established using the TWI testing program? (The problem occurred in the Shanxi Project.)

Analysis Procedure:

Check the code and it is found that the driver that calls the code cannot find the testing configuration to the voice card. The TWI admits that there is a BUG existing in the driver. The testing configuration is saved in the relative path, which caused the problem that the voice card configuration cannot be found by the driver.

Cause:

The default path is Windows\System32 in the PESQ service. Hence the configuration file of the voice card cannot be found.

Solution:

Copy the testing configuration file of the voice card to the directory Windows\System32.

Improvement:

The newly-released PESQ service has revised the program and force the program to search the configuration file of the voice card under the directory *Windows\System32*.

3.2.3 What if dial cannot be established and there is no PESQ score after PESQ service runs for a while? (The problem occurred when testing the fixed network in the Guangzhou Project)

Analysis Procedure:

Use two phones to test if the line works well and it is found that the phone wire is not working.

Cause:

In the Guangzhou Project, there are two BL servers in application for connection of two phone lines. In case that dial between BL servers is too frequent, servers will be halted.

Solution:

Restart BL servers.

Improvement:

It is recommended not to use BL servers for dial test at the early stage of testing.

3.2.4 What if dial cannot be established using the voice card even though dial can be established by phone when the time window method is applied? (Problem occurred in the Zhongshan-Zhuhai PESQ Project)

Analysis Procedure:

Check the LOG. It is found that there is no receiving call and the outgoing call is auto hung up after a certain time duration.

Cause:

It is configured in the program that the call will be auto hung up if dial is not established within a certain time period in accordance with the setting of Time Window.

Solution:

Set longer access duration, say 20s for example which is the empirical value. In the actual testing, the access duration can be as long as 90s.

Improvement:

Please contact our technician and ask for device debugging on the site.

3.2.5 What if the PESQ Score is 1

In case that the PESQ Score is 1, probably there is no sound in the recorded wav file. Please check if the phone wire works.

If the phone line in use is the general PSTN, the problem may lie in the defect of the Wuyuexin Voice Card which is related to the delectability to analog line. On the condition of light current, some events may be ignored by the Wuyuexin card during the monitoring. For example, when the call has been hung up and this event is not monitored by the voice card program, sound playing and sound recording are still in process. In this case, the PESQ will be 1.

Solution:

Reset the line or pull out/plug in the line again. Or set the time limit for silence detection. That's to say, if it is detected the silence has lasted over some time duration defined in the setting, the line will be auto reset.

Another reason for the silence problem may be that there is no PESQ device configured in the RCU and it does not support sound playing and sound recording. When setting the Test Plan, PESQ(MOS) test plan can be configured even if there is no PESQ device in the RCU because the system does not validate the hardware configuration during test plan configuration. Please check the Delivery Configuration Document on RCU hardware.

3.2.6 Where the PESQ service log locates?

In the LOGS folder under the installation directory of PESQ service, Call Control is the LOG for outgoing calls which is helpful to troubleshoot the PESQ service problem. LOG is in English. Checking the Log, technicians can solve 90% of PESQ service problems.

3.2.7 What if only part of wav. files are saved in PESQ server?

If the PESQ Score is lower than a certain score which can be defined in the setting **Stored Score Limit**, the recorded wav file will be stored in the PESQ server for further analysis.

3.2.8 What if PESQ score is low?

Use the **CoolEdit** to check the recorded wav file. If the sound wave length is not the standard 8s, please check if the PESQ server time synchronizes with that of Data server. Synchronizing time may solve the problem.

Check if the disk space storing voice data is enough.

3.2.9 What is the normal level of the PESQ score?

Usually, the PESQ score computed using a fixed-line phone to dial is higher than that computed using a mobile phone to dial. The normal level of the PESQ score is 3.0 to 4.2. If the score is higher than 4.2, there may be something wrong with PESQ service, while if it is lower than 2.0, the phone may get faulty. But if the anomalous score appears for just one or two times, it is normal as usual. Please troubleshoot the PESQ service problem based on the analysis to factors listed above that may greatly affect the operation of PESQ service.

3.2.10 Why there are two scores displayed on Voice Monitor?

Based on the PESQ standard algorithm, both LQ score and PESQ score are generated, differing by around 0.5. In our software, LQ score (usually the higher one) is taken as the final statistical result.

3.2.11 Why the PESQ score monitored and the score statistically generated on the server is different , analyzed to the voice test occurring in the same place at the same time?

PESQ standard algorithm is applied in Fleet system and a PESQ score will be generated therewith. But this score is actually not a standard MOS (Mean Opinion Score) value. Hence in the Fleet system, the PESQ score will be converted to MOS value, represented by LQ score, which is used in Fleet statistical analysis.

3.2.12 How to configure voice test?

1. Configure the PESQ service and add the phone numbers of the modules in the RCU and their corresponding ports.

2. Configure the phone numbers at corresponding ports in the Fleet Project. And set the parameters for the voice test, such as the dialed number configured to the PESQ server.

3. Add the PESQ test plan and set the port in the RCU for performing voice test.

4. Upon finishing the configuration, restart the three services ending with *2*.

With hyper-threading, the PESQ service may be halted caused by voice card driver. It seldom happens that there is no PESQ score generated. If it happens, please check the configuration and restart the server.

3.2.13 How to get the average value of PESQ score?

Average value of PESQ score = $\sum_{i=1}^{N} Vi \; / N$

Vi represents the score of each sampling point.

3.2.14 What if the PESQ service is always halted?

Please check if the hyper-threading is activated in the PESQ server. If yes, restart the PC and then enter BIOS system (Usually by pressing Del) to disable the hyper-threading in the configuration related to CPU/Chip.

3.2.15 What is the PESQ score range and their respective implication?

The PESQ (Perceptual Evaluation of Speech Quality) score range and implication is as follows.

1.0: imperceptible

1-1.5: Strongly annoying background noise and breaking sound

1.5-2.5: Annoying background noise and breaking sound

2.5-2.8: Slightly annoying background noise and breaking sound

2.8 or higher: normal

3.2.16 What if there is no uplink score?

There is only downlink score displaying. Please check if the phone number of the module in the RCU is correctly configured. After the modification, restart all the services. And then check if the disk space is enough in the PESQ server. If not, new voice files will not be stored and thus the voice evaluation cannot be processed.

3.2.17 How long does it cost for performing a complete PESQ test?

20S=Sound recording 12S+Sound playing8S

3.2.18 Why is it required that both of the two ends shall be dialed?

Because the dial between the two ends shall be performed with sound recording and sound playing.

3.2.19 What if the PESQ service fails?

1. Check if the call to the module in the RCU can be established and verify if the sound can be properly played by the phone module.

2. Check if the sound can be properly played by the voice service. Use a phone to call the number configured to the voice service to check if the call can be answered with sound played in the server. If not, check if the driver runs as normal. Then use another testing program provided by other manufacturers to test if the call can be answered with sound played.

3. Check the installation configuration to the PESQ service.

3.2.20 Whether the call can be established using any phone to dial the number configured to PESQ service?

Only the phone number that has been configured in the Fleet system in advance can be valid for dialing the PESQ service. Test configuration in the data server will be applied in the PESQ service. If the phone number does not exist in the

test configuration file, the call will be rejected by the PESQ server.

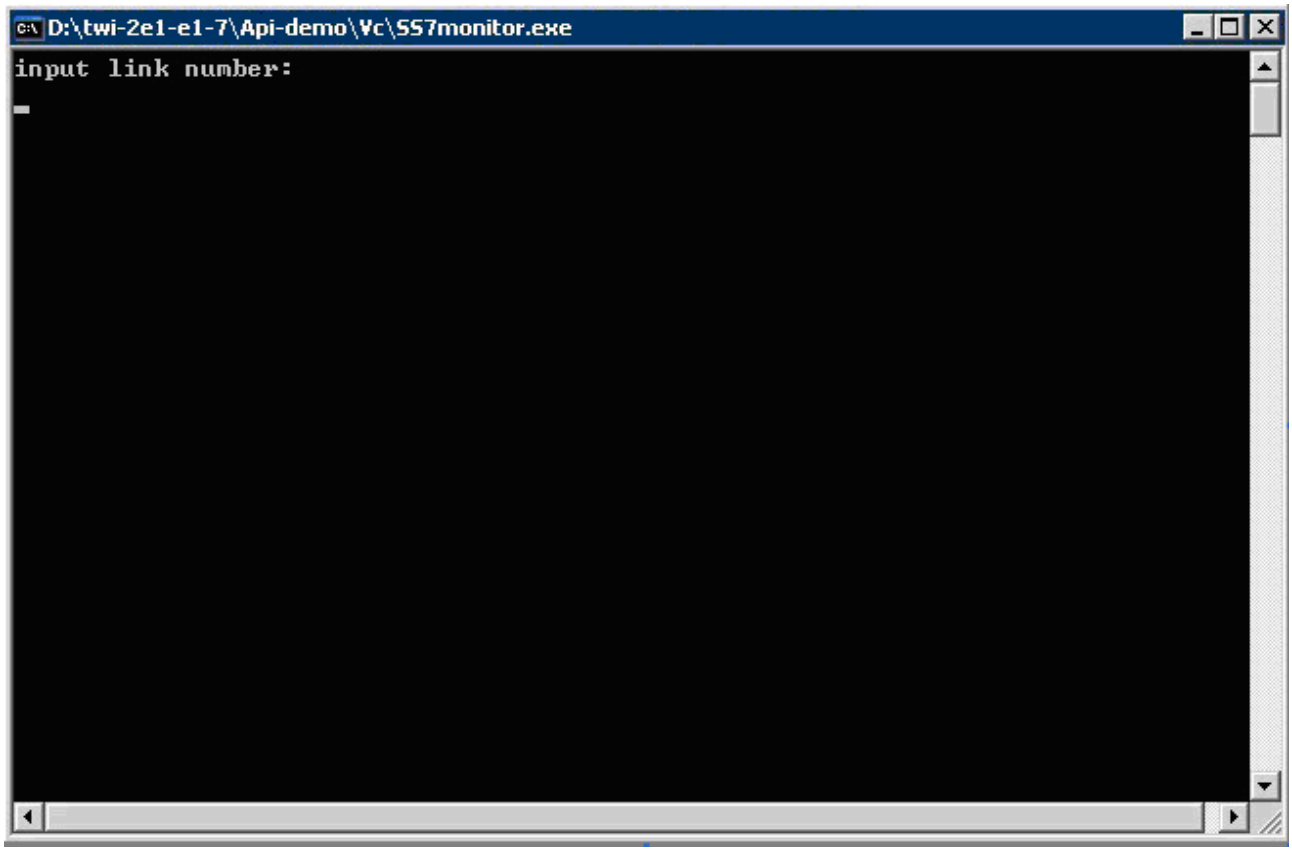
3.2.21 What if the call cannot be answered using the PESQ server or Wuyuexin testing program? (The problem occurred in Jiangsu Project)

Analysis Procedure:

Alerting can be heart but the call is not answered. That may be caused by the missing of the voice card driver in the system (due to the hard disk problem). But later it is verified that outgoing call can be made, which proves the driver is in good condition. Use the Wuyuexin voice card detection tool pcm7_listen_call.exe and run the SS7monitor.exe program to view the signaling info. It is found that signaling is in transmission while the outgoing call is in process. However, there is no signaling displaying related to the info on the incoming call received by the voice card. It is confirmed that the calling line is restricted. Under the assistance of the R&D Department, the problem is solved.

3.2.22 How to use pcmn7_listen.exe and SS7monitor.exe to debug the TWI E1 SS7 card?

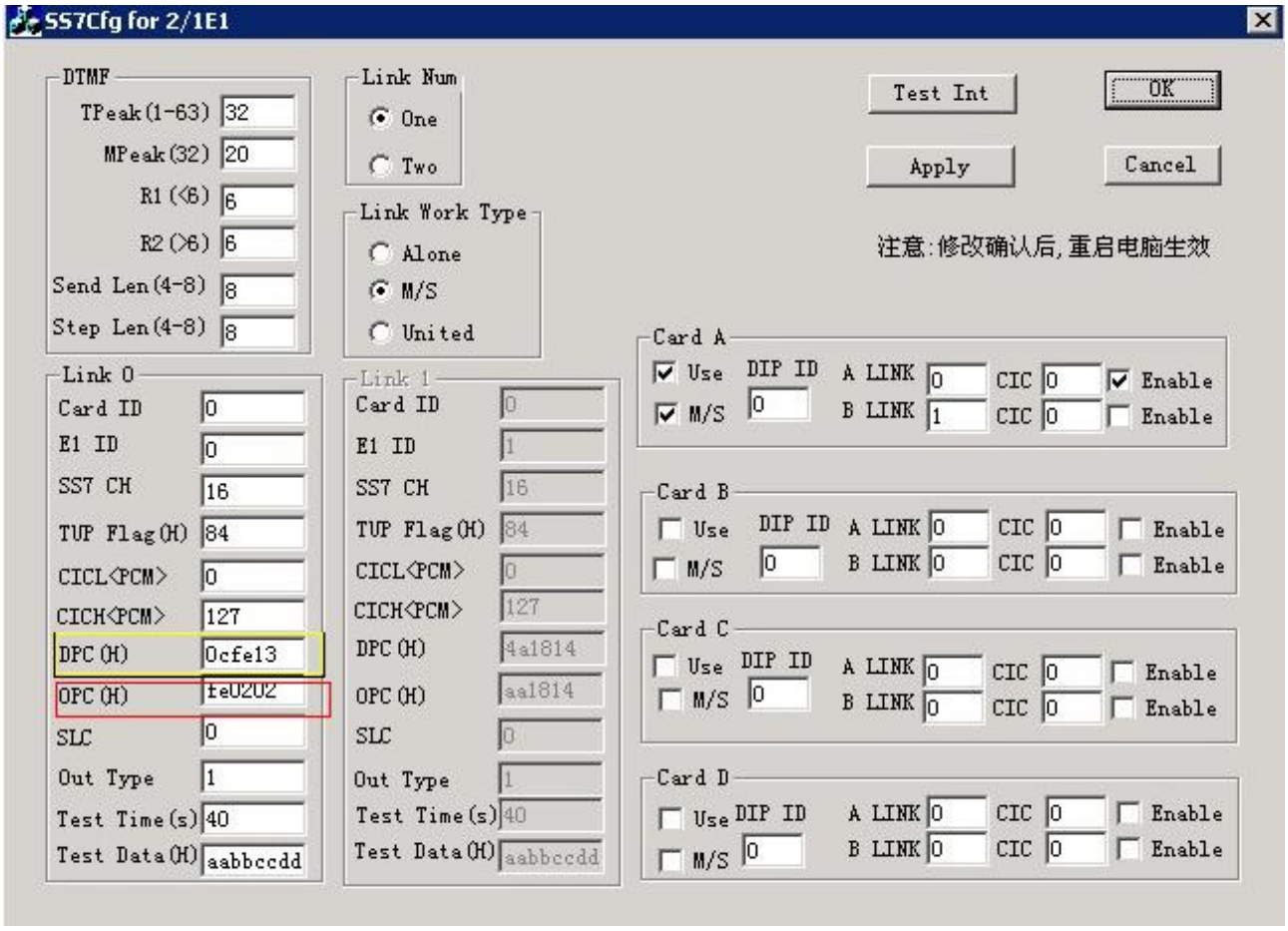
Run the program *Api-demo\Vc\pcmn7_listen.exe*, and then *SS7monitor.exe*. The windows will show as follows.



Enter *0* and signaling info related to the voice card appears.

```
Request        R:13 7e 87 fd 0a 84 fe 02 02 0c fe 13 0a 00 46 39 e9 7e
Request        R:13 7e 89 ff 1a 83 fe 02 02 0c fe 13 03 09 00 03 05 07 02 42 01
 02 42 01 06 03 fe fe 02 02 00 6a cb 7e
Request        R:13 7e 8b 82 11 84 fe 02 02 0c fe 13 0c 00 11 0a 02 74 54 05 00
 00 38 30 7e
Request        R:13 7e 8c 83 12 84 fe 02 02 0c fe 13 0c 00 12 02 c2 31 29 37 20
 69 f5 ba 0a 7e
Request        R:13 7e 97 8d 0a 84 fe 02 02 0c fe 13 0c 00 46 38 0c 7e
Request        R:13 7e 9a 90 0a 84 fe 02 02 0c fe 13 02 00 46 45 bd 7e
Request        R:13 7e 9c 92 11 84 fe 02 02 0c fe 13 0e 00 11 0a 02 74 54 05 00
 00 42 85 7e
Request        R:13 7e 9d 93 12 84 fe 02 02 0c fe 13 0e 00 12 02 c2 31 29 37 20
 69 f5 ba 65 7e
Request        R:13 7e a8 9d 0a 84 fe 02 02 0c fe 13 0e 00 46 03 76 7e
                                    OPC
Request        R:13 7e e5 d7 1a 83 fe 02 02 0c fe 13 05 09 00 03 05 07 02 42 01
02 42 01 06 03 fe fe 02 02 00 78 97 7e _      DPC
```

If the info *link status 4* appears, it indicates that the signaling is consecutively transmitted. If it is "link status 3", it indicates that the physical link works well but the OPC and DPC are incorrectly configured. Check the R13 information to acquire the related configuration info for OPC and DPC (as shown in the above picture). And then fill the value in the program SS7Cfg_2_1E1.exe (See below).



Restarting the server can solve the problem.

Signaling can be monitored using SS&monitor.exe. The signaling beginning with the letter S is the sending-out signaling, while the signaling beginning with the letter R is the receiving signaling. If only sending-out signaling displays, it indicates that the switching device may get faulty. And if only receiving signaling displays, it indicates that the voice card may be faulty. If there is not any signaling displaying, please check the E1 link firstly to see if it is connected to the voice card properly and then check if the card driver is the correct one (it is recommended to use the driver stored in the CD offered by manufacturer but downloading it online). After the confirmation to the above issues, if the problem still exists, please contact our R&D Department and ask them to confirm if the card get faulty using the development diagnosis program. If the SS7monitor.exe and pcmn7_listen.exe work well and sound can be played normally, it can be proven that the problem is caused by different versions of Dynamic Library in the driver and in the voice service. Please contact our R&D Department to solve the problem.

3.2.23 PESQ problem that occurred in GMCC project

Problem:

The driver cannot be installed successfully at first. And after the driver is installed properly, the signaling cannot be transmitted consecutively that caused the failure of the voice card.

Solution:

Delete the original driver installed under Windows\Inf and re-install the driver of the original version. Upon finishing the installation, only the sending-out signaling can be monitored using the SS7Monitor.exe but there is no receiving signaling displaying. Then with the assistance of staff in China Mobile, the E1 link is verified and it is found that the physical link works well while the signaling channel is 1 instead of 16. Modifying the SS7 CH from 16 to 1 can solve the problem.

3.2.24 PESQ problem that occurred in the project of Xinjiang Unicom

Problem:

With the single E1 card of TWI A serial in use for the Fleet 3.1 PESQ service, the dial cannot be established and initialization of voice card fails.

Solution:

Firstly, check if the OPC and DPC are configured correctly and if the signaling is transmitted consecutively. Then copy the well-configured TWIConfig.ini to the directory of the program and System32. And copy the Pcmn7api.dll that locates under the System32 folder to the PESQ service installation directory. Finally, restart the PESQ service.

Cause:

The pcmn7api.dll file auto generated during the installation of Fleet3.1 PESQ server can only support the voice card of I serial but cannot support the voice card of A serial, though TWI claimed that the driver of A serial is compatible with that of I serial.

3.2.25 PESQ problem that occurred in the project of Jiangsu Mobile

Problem:

Upon configuring the voice card correctly, use a phone to dial the number configured to the PESQ server. The

recorded sound is noisy, same as the testing result using the TWI testing program.

After recording the sound, the voice server does not perform computing.

Tabs are added consecutively with the VoiceMonitor but the score cannot be displayed correctly.

Sound playing and recording are well processed while a phone is used to dial the number configured to the PESQ server. But when the RCU is in use for PESQ test, there is not any sound coming out.

Solution:

1. Upon configuring the voice card correctly, use a phone to dial the number configured to the PESQ server. The recorded sound is noisy, same as the testing result using the TWI testing program.

Replace the Dynamic Library. If the problem still cannot be solved, please contact our R&D department.

2. After recording the sound, the voice server does not perform computing.

When installing the PESQ server, PESQCom.exe is not registered and there is a lack of nsp.dll file. Registering PESQCom.exe and adding the nsp.dll file in the server can solve the problem.

3. Tabs are added consecutively with the VoiceMonitor but the score cannot be displayed correctly.

When installing the PESQ server, teeChart.ocx is not registered. Registering teeChart.ocx can solve the problem.

4. Sound playing and recording are well processed while a phone is used to dial the number configured to the PESQ server. But when the RCU is in use for PESQ test, there is not any sound coming out.

It may be caused by faulty RCU, probably the faulty sound card in the RCU. Restarting the RCU may solve the problem.

Cause:

The faults mentioned above may be caused by the following problems

1. The driver is not properly installed. Please install the TWI driver which is stored in the CD offered by the manufacturer to ensure the proper installation.
2. During the installation of PESQ service, the three system components, including PESQCom.exe, FleetBaseDataSvr.dll and teechart.ocx, need to be registered. Provided that the failure of registration is reported during the installation, please register the components manually.
3. If there is no sound coming out from some individual RCUs, please copy a voice file from the RCU and send it to our R&D team for problem troubleshooting and verification (The problem probably lies in the faulty sound card).

4 Questions on Statistical Results and Reports

4.1.1 What if KPIs in statistical results and reports are invalid?

Provided that the selected RCU is not the target one that needs to be analyzed, KPIs in statistical results and reports will be invalid.

4.1.2 Why is the dropped call count obtained on the Web different from that obtained on the Navigator?

Seen from the statistical results via the Web, the dropped call with the average quality 0 is actually not the real dropped call but the false events that RCU reports that mostly are caused by faulty sound card or anomalous reboot. The anomalous dropped call occupies around 20% of the total dropped call events.

It only affects the KPIs statistically analyzed via the Web, and does not affect the analysis process via the Navigator.

Solution: Please use the newly released RCU firmware which may solve this problem partly. But the unified version, which could be more stable, is being in validation recently.

4.1.3 Why is the statistical information on Call Delay to CDMA network inaccurate?

Due to the impreciseness of CDMA signaling, the CDMA Call Delay needs to be analyzed accurately with the combination of MOC statistical results and MTC statistical results. When setting the statistical conditions, please designate the corresponding RCU ports.

4.1.4 What if Excel reports cannot be downloaded on the Web?

The problem may be caused by halted Excel process. Please log in the remote Statistics Server and use the **Windows Task Manager** or *procexp.exe* to end the Excel process.

4.1.5 What if Word reports cannot be downloaded on the Web?

The problem may be caused by halted Word process. Please log in the remote Statistics Server and use the **Windows Task Manager** or *procexp.exe* to end the Word process.

4.1.6 How to generate the Coverage Map?

First of all, create a statistical template for coverage map that indicates the parameter distribution in the DT track shown on the map so that the coverage map will be generated and appears in the statistical results.

Create a statistical template

Click **Statistics/Report** on the left navigation bar and then choose **Statistics Condition**. Then click the button **Add Coverage Map Condition**. In the pop-up page, enter the **Name** and **Select Statistics Method** which can be set as default **Normal**. Then choose the **Net Type**. Click **threshold details** to select parameters that shall be displayed in the coverage map. The threshold value and color can be edited by clicking **Edit** by the parameter. Upon finishing the modification, click **Apply** to validate the configuration. Finally, click **Save** to save the *Coverage Map Condition Info*.

Generate the Coverage Map

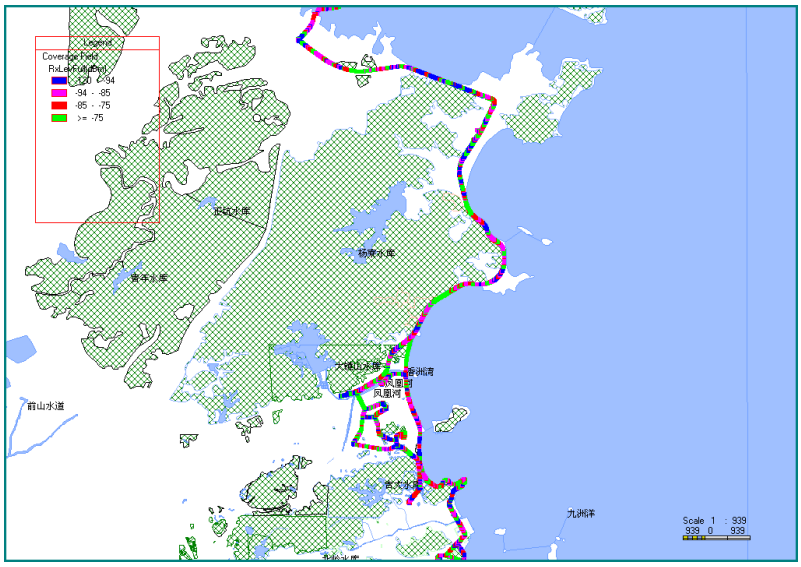
Click **Statistics/Report** on the left navigation bar and then choose **Report Task**. Click the button **Add** to add **Coverage Graphic**. Click **Next** and in the pop-up page enter **Name** and select the template that is configured in the

previous step. Then select the RCU and the map, and set the time period. Click **Submit** to submit the report task.

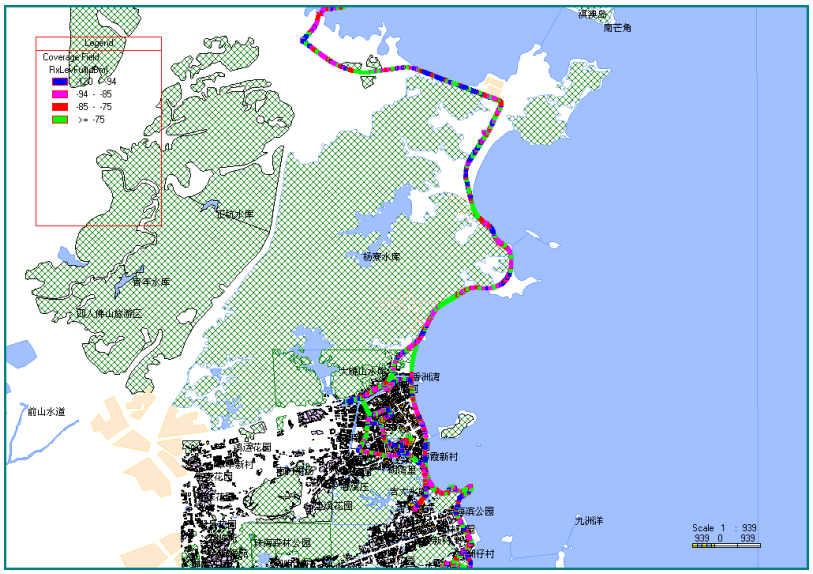
After performing the statistics/report service, the compressed package of the coverage map, including the coverage map (the picture in the format of *.gif) and Tab file (applicable in the Mapinfo software), can be downloaded in the **Report Task**.

4.1.7 How to generate the Coverage Map in Mapinfo Tab format?

The below ReLevFull coverage map is integrated with the Tab GIS map of Zhuhai Water and Landmark.



The below ReLevFull coverage map is integrated with the Tab GIS map of Zhuhai Water , Landmark, and Block.



Firstly, click **Map information** under the label **Configuration** in navigation bar on the left. Click the button on the right to add the map in the format of **Vector**. Save the setting and then upload the Tab map file. Files related to the Tab file, such as *.mif, *.mid, *.map, *.id, *.dat and so on, also need to be uploaded.

As the generation of the coverage map is required, select the **Vector** map added in the **Map information** and the coverage map can be generated in the Mapinfo Tab format.

Note: The Tab Layers are overlaid in the order corresponded with the sequence that they are uploaded. That's to say, the Tab Layer uploaded at earliest time is placed at the bottom. Many maps in Tab format can be uploaded in one "map information" template. The uploaded map size in one "map information" template shall be limited in 1000 bytes. Only the map in Tab format can be uploaded, and maps in other format, such as *.mif, are not supported. Provided that there is no list of latitude and longitude coordinates existing in the *.mif file related to the map in Tab format, the Tab map shall not be used as background.

Once the uploaded map size is over 1000 bytes, the error "*Error: String or binary data would be truncated. The statement has been terminated*." will be reported on the Web page

4.1.8 How to use the "Resubmit" function for immediate regeneration of reports?

Click **Report Task** and the page on the right of the column show the list of report tasks. Click one report task, and the info including *File Format*, *Condition Template*, *Device and time setting*, *Statistical Result* and so on will be presented in the pop-up page.

Click **Resubmit** button to rename the newly generated report, which is much more time-saving compared with re-configuring the report task on device and time settings and then generating the report again.

4.1.9 How many tracks can be displayed in one coverage map with offsets, each for one parameter?

10 at the most

4.1.10 What if it always fails to generate coverage map for the statistical analysis to data consecutively collected in one week/month?

It is strongly recommended that amount of coverage maps shall not be over ten every time users download.

Due to the massive data volume of one week/month, in the **Statistics Method**, please tick the **Grid** option instead of **Normal** which may be less effective in analysis and not accurately reflect the insight into the network coverage condition, and then set **Grid** by the default *100mx100m*.

4.1.11 Why is the statistical report, whose name involves Chinese characters, unable to be downloaded?

Please use the IE7, Firefox or Google browser instead of IE6 to sign in the Web and the statistical report with the report name involving Chinese characters can be downloaded successfully. Because BUG exists in the IE6 for displaying Chinese characters in the download address, the statistical report with the name involving Chinese characters cannot be downloaded via the IE6 browser.

5 Questions on Data Download and Navigator

5.1.1 Why is the MSG data file downloaded on the Web NULL

The MSG data file downloaded via the Web is closely related to the statistical results. In the case of abnormal statistical results, the MSG data file involving the abnormal events will emerge. The abnormal events include Call Dropped and Call Blocked.

5.1.2 What is the difference between the two data formats *paf and *.rcu downloaded from the Fleet server by Navigator.

The analysis results separately generated from the processing to data in these two formats are same. *rcu is the format of the compressed data, which can be uploaded to the Fleet server via the RCU Client.

5.1.3 What if the data collected by the EVDO module or other modules cannot be opened or analyzed on the post-processing software Navigator.

The version of the Navigator is the old one that does not register the information on EVDO module or other new modules.

Please install the software of new version or try to add the information of EVDO module or other new modules to the program. Find *navigator.dev* in the installation directory of the software. Open *navigator.dev* in the format of textbook, and then add the following words at the end the last line.

"QualcommMS-EVDO",QualcommCDMAEvdoRevAMSDecoder.dll,CDMA,HandSet,QualCommCDMARevA"

Relatively new modules include the following ones.

"Huawei ET128",T3G7210TDSCDMAMSDecoder.dll,TDSCDMA,HandSet,TDT3G7210

"SAMSUNG H128",T3G7210TDSCDMAMSDecoder.dll,TDSCDMA,HandSet,TDT3G7210

"DX 128",T3G7210TDSCDMAMSDecoder.dll,TDSCDMA,HandSet,TDT3G7210

"Huawei ET128",T3G7210TDSCDMAMSDecoder.dll,TDSCDMA,HandSet,TDT3G7210

"td-t3g",T3G7210TDSCDMAMSDecoder.dll,TDSCDMA,HandSet,TDT3G7210

If data still cannot be decoded and analyzed properly after the new module info is added to the *navigator.dev* file, please update the software.

5.1.4 What if Navigator Dongle for Fleet system is invalid for opening data files that are exported from Pioneer?

Since Pioneer software is not involved in the Fleet system, the dongle specifically used for Navigator which is involved in the Fleet system cannot be used for opening data exported from Pioneer.

Please contact Sales Department to purchase the license for the compatibility of the Pioneer data in Navigator if necessary.

5.1.5 What if Navigator does not work?

Please confirm that in the installation directory of Navigator, there exists the license file *Navigator.lcf*.

Then confirm that the Dongle is being inserted into the USB interface of the PC and work normally. You may try to

insert it into another USB interface or re-install the Dongle Driver.

The Navigator dongle shall be upgraded and registered every Jan. 1st and July 1st with the specific software Dingli offers to customers for dongle upgrade. In case of unavailable public network or inaccessible public network port, please send the email to Dingli technicians for help.

Or if the trial period of the dongle is expired, Navigator will not be opened. Please contact Sales Department to apply for extension of the trial period.

5.1.6 What if the data size, transmitted from a RCU to Data Server and downloaded by Navigator from Data Server, is always 1 KB?

Restart the Fleet Database Service.

5.1.7 Why does the cell link become invalid after re-opening the project on the Navigator of the version released at the end of June, 2009?

The problem occurred in the project of Customer A/Sudan. And the software bug has been fixed by our R&D Department. Please use the software of the version released after Sep. 17th, 2009.

5.1.8 What if the data cannot be downloaded by Navigator immediately the Modem finishes the data transmission?

After the modem in a RCU finishes the data transmission, Data Service will write the index into the database. And before the index is written into the database, the download request sent from Navigator will not be handled and the data file will not be downloaded.

If the data is required to be downloaded immediately, please restart the Data Service so as to activate the update of the data index.

If it is not necessary, please wait a while until the data service has updated the index in batch.

6 Questions on R&D

6.1.1 Version of Decoding Library

Due to the difference in handset modules and protocol, the decoding library version will be updated occasionally. Upon the updating, the previous data may be not decoded as normal. During the installation of the server, please choose the correct decoding library version. Otherwise, abnormal statistical results may be caused due to an incorrect version.

7 Other Questions

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